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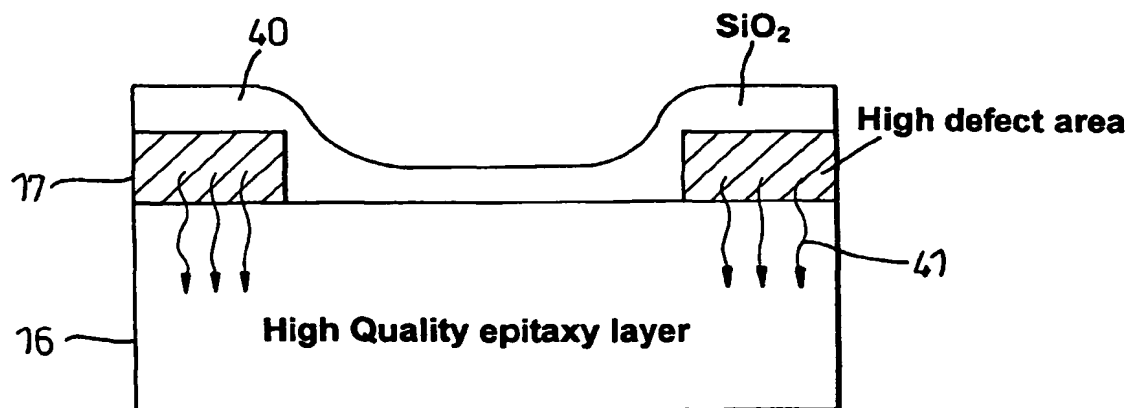
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(54) Title: **QUANTUM WELL INTERMIXING IN SEMICONDUCTOR PHOTONIC DEVICES**



(57) Abstract: A method for fabricating a semiconductor device in a semiconductor structure, provides enhanced quantum well intermixing in desired regions of the device by forming a first, relatively high quality, epitaxial layer on a substrate, the high quality layer including a quantum well; forming a second, relatively lower quality, epitaxial defect layer on top of the high quality layer; and thermally processing the structure to effect at least partial diffusion of the defects from the defect layer into the high quality layer in order to achieve quantum well intermixing in the structure. The use of an epitaxially grown defect layer on top of, or within, a high quality epitaxially grown device body enables quantum well intermixing techniques to be performed at lower temperatures and thereby improves device characteristics.

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